NAVAL MEDICAL RESEARCH AND DEVELOPMENT

NEWS

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ONR Officials, Navy Surgeon General Meet to Coordinate Medical Research

From ONR Public Affairs

Influential leaders from the medical and research communities held high-level discussions on biomedical science and technology (S&T) initiatives at the Office of Naval Research (ONR) September 16.

"ONR's relationship with Naval medicine is very important, most visibly with the Marine Corps component because of the physical demands required on the battlefield," said Chief of Naval Research Rear Adm. Nevin Carr. "This meeting of the minds allowed us to engage on a wide range of topics. We had an opportunity to align our thoughts on delivering cutting-edge medical solutions to warfighters."

The one-day event featured a lineup of dynamic senior Navy leaders, including Navy Surgeon General Vice Adm. Adam M. Robinson Jr. and Rear Adm. Matthew Nathan, commander of Navy Medicine National Capital Area and the Walter Reed National Military Medical Center in Bethesda, Md.

ONR has a successful track record of providing Sailors and Marines with medical advancements. Most recently, a breakthrough was made in undersea medicine regarding a new capability for examining how cells work at pressures far below the sea surface. This innovative "patch clamping" technique bridges a gap to understanding and identifying potential applications to guard against decompression sickness during military diving operations.

Medical S&T efforts at ONR are executed under the organization's Force Health Protection (FHP) research portfolio. FHP initiatives include developing new practices, procedures, medical devices and pharmaceuticals for improved personnel performance; casualty prevention; fatigue countermeasures; and combat casualty care.

"This joint opportunity positions ONR to move forward together with the Navy and other medical stakeholders that are essential to improving the future health and fitness of the Navy and Marine Corps," said Dr. Terry Allard, ONR's director of warfighter performance.

In the coming weeks, ONR researchers will continue their medical S&T dialogue with Nathan, who has been tapped to become Robinson's replacement as Navy surgeon general.

The Department of the Navy's Office of Naval Research provides the science and technology necessary to maintain the Navy and Marine Corps' technological advantage. Through its affiliates, ONR is a leader in science and technology with engagement in 50 states, 70 countries, 1,035 institutions of higher learning and 914 industry partners. ONR employs approximately 1,400 people, comprising uniformed, civilian and contract personnel, with additional employees at the Naval Research Lab in Washington, D.C.

Chief of Naval Research Rear Adm. Nevin Carr, right, welcomes Navy Surgeon General Vice Adm. Adam M. Robinson Jr. and Rear Adm. Matthew Nathan, commander of Navy Medicine for the National Capital Area and the commander of the Walter Reed National Military Medical Center in Bethesda, Md., to the Office of Naval Research (ONR) in Arlington, Va., for an exchange of ideas as part of an ONR biomedical science and technology program overview. Nathan has been selected to replace Robinson as the next Navy surgeon general. Photo by John F. Williams.

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Commanding Officer's Message

We will be celebrating NAMRU-3's 65th anniversary October 20 in Cairo with a host of guest speakers from NMRC, the Egyptian Ministry of Health, the World Health Organization, and others. NAMRU-3 is the oldest of the Navy's labs outside the United States, recognized in 1942 when the U.S. Typhus Commission placed a research laboratory staffed by American scientists and technicians in Cairo. The lab was formally established in 1946. In the beginning researchers focused on activities in Egypt and neighboring countries, but in recent years they have expanded activities in the Middle East, Sub-Saharan Africa, Eastern Europe and Central Asia. NAMRU- 3 is playing an important role in the global response to monitoring infectious disease trends among DoD personnel deployed to operational bases in Djibouti, Afghanistan and Iraq. And the team also carries out public health activities aimed toward improving capacity building, disease surveillance and outbreak response assistance. The lab is supporting force health protection in the Horn of Africa, working closely with the Egyptian Ministry of Health and WHO, helping Djibouti with disease surveillance, responding to disease outbreaks in Yemen, fighting malaria in Liberia, conducting joint research with Ghana, and studying diseases in the Republic of Georgia.

As a former NAMRU-3 Department Head and investigator and then Executive Officer, I share their pride in the significant accomplishments of the lab in its unprecedented 65 year history. From its very beginnings, NAMRU-3 has been a valued partner of the Egyptian Ministry of Health in responding to some of the most significant health threats facing the country. Whether it was controlling typhus or drastically reducing cholera mortality, NAMRU-3 proved itself equal to the crisis at hand. This continued throughout the lab's illustrious history, whether they were conducting trials of vaccines for epidemic meningitis, treating schistosomiasis, or confronting Rift Valley fever, all the way to current efforts to detect and control pandemic influenza. NAMRU-3 has been relevant, effective and a professional force for good; as I like to say, we are "medical diplomats" carrying out medical diplomacy every day. While we laud NAMRU-3 the institution, let us not forget it is the staff, following in the footsteps of their predecessors, who have kept the tradition of excellence alive. On the occasion of this 65th anniversary of NAMRU-3's commissioning, I salute you and your selfless efforts.

Finally, let me wish a happy 236th birthday to the U.S. Navy!

Commanding Officer sends,
Richard L. Haberberger, Jr.
CAPT, MSC, USN

NAMRU-2 Singapore Supports Global Threat Reduction Initiatives

Opening remarks at BioSSD 2011 by the Minister of Defense of Malaysia, Dato Seri Dr. Ahmad Zahid Hamid.

In collaboration with the Department of State Biosecurity Engagement Program and the Malaysian Armed Force Science and Technology Research Institute for Defense (STRIDE), U.S. Naval Medical Research Unit No. 2 (NAMRU-2) Singapore co-sponsored the Biosafety, Biosecurity and Biodefense 2011 International Congress (BioSSD 2011) in Kuala Lumpur, Malaysia.

The purpose of this event was to provide a forum for bringing together regional and international experts to discuss challenges and opportunities for promoting global health security and strengthening regional collaborations. This event also marked the launching of the Malaysian Biosafety and Biosecurity Association and was officiated by the Malaysian Minister of Defense, Ahmad Zahid Hamidi, the president of the Biological and Toxin Weapons Convention (BWC), Ambassador Paul van den Ijssel, and Mr. Simon Limage, the Deputy Assistant Secretary for Nonproliferation Programs in the State Department's Bureau of International Security and Nonproliferation. The government in Malaysia is drafting a bioweapons bill to protect the country against biochemical threats.

"There is a world concern about the proliferation of biological weapons. This is seen as a poor-man's weapon of mass destruction…There needs to be a global awareness of the growing threat of biochemical weapons," said Dr. Ghaffar, Director of STRIDE.

Over 300 participants attended this event, including more than 50 internationally recognized experts in the field of biorisk management and communication.

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Live Attenuated Malaria Vaccine Trials Opens New Frontier

In September, Science Magazine published research about a promising new malaria vaccine developed by a team led by a Navy scientist. The discovery of a highly effective vaccine is an important priority for Navy Medicine because of the significant impact malaria has had and continues to have on the readiness of the U.S. military.

Capt. Judith Epstein, a Naval Medical Research Center (NMRC) researcher with the U.S. Military Malaria Vaccine Program (USMMVP), led a team of military and civilian scientists in testing the vaccine.

"Our goal is to protect the lives of our military personnel," said Epstein. "We need a vaccine which is as effective against malaria as the vaccines we use every day to prevent other life-threatening diseases. Also, DoD has a long tradition of transitioning life-saving vaccines and drugs to the developing world; if we are successful, a vaccine used to protect our Sailors and Marines could also be used to save thousands of lives in malaria-endemic areas."

While additional studies are required, Epstein is pleased with the groundbreaking work the team has made. The approach being pursued capitalizes on prior Navy studies. The initial research for a malaria vaccine began in the 1970s in studies by the Navy

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Capt. Judith Epstein, NMRC researcher for the U.S. Military Malaria Vaccine Program.

BRAC Produces Research Facility with Energy, Maintenance Savings

By Joe N. Wiggins, NAMRU-San Antonio Public Affairs

One of the final directives of the 2005 Base Realignment and Closure (BRAC) Law was completed when the Tri-Service Research Laboratory officially opened with a ribbon-cutting ceremony at Fort Sam Houston, San Antonio, Texas.

It consolidates three military branches in one location while saving money in maintenance and utilities costs, according to officials speaking at the ceremony. Navy and Air Force officials praised the new facility and the results in biomedical research it will produce over the years.

"We are now witnessing the opening of this…project that resulted from that [2005] BRAC decision," said Rear Adm. Bruce Doll, the director of Navy Medicine Global Research, Special Assistant to the Navy Surgeon General for Medical Research. "Not only is this lab destined to produce even more of the kind of results that came out of the previous location, this building accom-

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From left: David Thomas, U.S. Army Corps of Engineers; Thomas Wells, director, 711th Human Performance Wing; Rear Adm. Bruce Doll, the director of Navy Medicine Global Research, Special Assistant to the Navy Surgeon General for Medical Research; and Eric Bunner, project executive, Skanska USA Building, Inc. use a laser to officially cut the ribbon marking the official opening of the Tri-Services Research Laboratory at Fort Sam Houston, Texas. Photo by Patricia Keilberg.

NMRC Developing Promising Vaccine for Travelers' Diarrhea

Of the 80 million visitors to developing countries each year, as many as 60 percent contract diarrhea, with 20 percent requiring bed rest and one percent hospitalization. While most diarrhea is acute (lasting several days), approximately 8-10 percent of sufferers may go on to develop persistent or chronic abdominal complaints. It is the most often reported illness among troops in Iraq and Afghanistan, nearly two-thirds of whom reported at least one episode during deployment, half of those requiring medical care.

The principal culprit is enterotoxigenic *Escherichia coli*, or ETEC, found most often in food and sometimes in water. It begins its way to the intestines, where it finds a home base as quickly as possible. The symptoms of illness usually include cramps, nausea, watery diarrhea and sometimes fever.

As of yet, there is no vaccine. A team at the Naval Medical Research Center (NMRC) hopes to change that.

The NMRC researchers know that to infect its host, the ETEC bacterium must latch on to the intestines.

Bacteria are covered with fine hairs called pili. At the tip of each hair, the bacterium deposits a sticky protein adhesin that makes it possible for these pili to adhere to a complementary host cell receptor. Once the bacterium attaches itself, it rapidly multiplies and releases the toxin that triggers diarrhea. The bacterium's success hinges on its ability to tether to the intestinal wall—without that there can be no infection.

Cmdr. Mark Riddle (left), clinical trial principal investigator, and Capt. Stephen Savarino, physician-scientist who has spearheaded the development of the ETEC adhesin vaccine, shown in the hallway outside the Clinical Trials Center at the Walter Reed Army Institute of Research.

The NMRC research team has developed an experimental adhesin-based vaccine that stimulates the production of antibodies that guard the

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NAMRU-3, Partners Host Influenza-like Illness Surveillance Workshop

By Darnell Gardner, NAMRU-3 Public Affairs

U.S. Naval Medical Research Unit No. 3 (NAMRU-3), in partnership with Central Public Health Laboratory and Disease Prevention Sector, Egyptian Ministry of Health (EMOH), hosted the first-ever Influenza-like Illness (ILI) Sentinel Surveillance Workshop. Hospital directors, clinicians and laboratorians from eight ILI sentinel sites converged in the coastal city of Ain Sokhna, Egypt, to deliver progress reports, share best practices and plan future ILI activities.

"The emergence of pandemic influenza in April 2009 and its subsequent rapid global spread have increased attention on influenza surveillance capabilities worldwide. From the influenza pandemic experience, we learned that adequate sentinel surveillance systems strengthen a country's capacity for influenza detection and prevention and hence raise world capacity to respond to influenza pandemic," explained Dr. Salma Afifi, NAMRU-3 epidemiologist and ILI coordinator.

The workshop agenda was developed using surveillance assessments collected throughout the past year. These assessments enabled organizers to tailor the topics of discussion to what mattered most to sentinel site participants. Participants from executive-level positions to nursing staff on wards were empowered to speak about which methods were most effective for collecting data as well as those that were either irrelevant or too time consuming. Topics of discussion centered on how to count the incidence of ILI cases accurately, maintain logbooks and data collection forms, and apply standardized ILI case definitions. In addition, emphasis was placed on improving channels of communication concerning surveillance levels, methods, contents and frequency of feedback reports.

ILI sentinel surveillance began in

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NAMRU-6 Participates in Teleconference on Specimen Collection

By Lt. H. Westcott, NAMRU-6 Public Affairs

Dr. Amy Morrison, the Iquitos science director for the U.S. Naval Medical Research Unit No. 6 (NAMRU-6) in Peru, participated in an International Working Group teleconference titled "Challenges Involving Specimens Collected from Less Educated Populations" September 14. She shared her insights into performing effective informed consent, garnered from 13 years of cohort studies in Iquitos, Peru.

"Consent is not one size fits all. Standard language in California does not apply in Iquitos," said Morrison.

While NAMRU-6 researchers collect required documentation to meet regulatory requirements, truly effective informed consent hinges upon several other factors:

Field workers must be well trained. Workers are trained at the outset of a study, with periodic refreshers and daily meetings with supervisors to discuss issues. The key is having personnel who can explain a study and its risks in their own words – not just reading from a consent form.

NAMRU-6 study workers visit participants in their home.

Community-based studies need multiple approaches. NAMRU-6 researchers often start with community meetings or door-to-door visits to introduce a study. Education on the risks and benefits is an ongoing and interactive process. NAMRU-6 has also used (Institutional Review Board approved) pamphlets and even videos to explain studies.

Dr. Morrison also highlighted issues related to parental consent for minors. Typical nuclear families are not very common in Iquitos. "Extended families are common," she said. "Many of our participants live with grandparents, aunts, uncles, cousins, godparents and sometimes just good neighbors." This can make parental consent a complicated endeavor that requires good judgment on the part of study workers. When in doubt, a call is made to a supervisor or Morrison to ensure the interests of minors are protected.

In the end, the goal is not just collection of a signed document. It is true understanding on the part of the participants.

The International Working Group is composed of federal employees of the agencies that subscribe to the U.S. Common Rule for human subjects research. The group consists of representatives from the Food and Drug Administration, National Institutes of Health, Environmental Protection Agency, U.S. Agency for International Development, Centers for Disease Control and Prevention and other agencies. The meetings foster open discussion and examination of the issues and challenges involved in conducting research outside the United States.

From left: Dr. Claudio Rocha, Rebeca Carrion, and Dr. Amy Morrison conduct an informational session with potential study participants.

Live Attenuated Malaria Vaccine Trials Opens New Frontier

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and the University of Maryland in which volunteers were exposed to bites from mosquitoes harboring weakened malaria parasites. Using radiation -attenuated sporozoites, researchers achieved sustained sterile protection. A sporozoite is a form of the malaria parasite that is concentrated in the salivary glands of an infected mosquito and is introduced into a person's blood when the mosquito bites.

The recent published results focus on the first-in-humans clinical trials of the PfSPZ (Plasmodium falciparum sporozoite) vaccine developed by Sanaria, Inc., a biotechnology company in Rockville, Md., and work done by scientists from the Vaccine Research Center, National Institute of Allergy and Infectious Diseases, National Institute of Health, who demonstrated in a non-human primate model that when the vaccine was given intravenously rather than via subcutaneous or intradermaly injection, immune responses were extremely impressive. This showed the critical importance of the route of vaccine administration.

Epstein believes these advances in vaccine research are a credit to the dedicated efforts of many military and civilian scientists working in tandem. According to Epstein, the testing of the vaccine by Navy Medicine and their partners opens up a new area of vaccinology.

"It's all about the partnerships," said Epstein. "The results in this publication reflect the successful collaborative efforts of Navy Medicine and other leading researchers in academia and industry who demonstrated the immune responses that those involved in the treatment or prevention of malaria have been seeking for decades. The results of the next clinical trial are highly anticipated."

NMRC Developing Promising Vaccine for Travelers' Diarrhea

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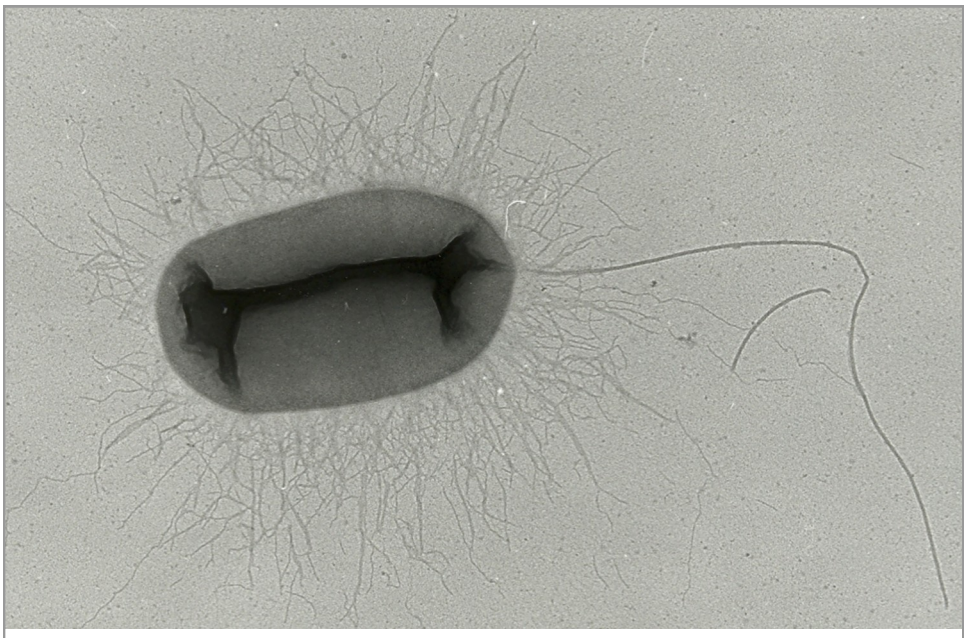
intestinal wall and effectively block ETEC bacteria at the point of contact. They also created a vaccine molecule that combines the adhesin with a nontoxic derivative of the ETEC enterotoxin, in effect alerting the body to produce anti-attachment and anti-toxin antibodies and further defend against infection. The vaccine being tested is a single component prototype of what would become a multivalent vaccine, designed to immunize against the most common strains of the ETEC bacterium.

"We are heading into this first clinical trial with a favorable tailwind, in that all of the data that we've accrued in preparation for it has been very promising," said Capt. Stephen Savarino, leader of the research team that has developed this vaccine and head of the Enteric Diseases Department, NMRC.

The researchers will administer the test by skin patch, then collect specimens to gauge the body's ability to ward off infection.

"Primary outcomes for this trial are safety," said Cmdr. Mark Riddle, the principal investigator and a researcher in NMRC's Enteric Disease Department. "We hope that the vaccine will be safely tolerated and not result in any severe or serious adverse events. An additional outcome is immunogenicity. We hope this trial will demonstrate the vaccine given by the skin results in robust immune responses and specifically immune responses in the GI tract."



Electron micrograph of the ETEC bacterium, with the hair-like fimbriae radiating from its surface. The adhesin-based vaccine has been engineered from the sticky protein found at the far tips of each of these hairs.

The DoD is responsible for the health and welfare of nearly 1.4 million service members at 5,000 bases in the United States and its territories and another 700 bases worldwide. The DoD has co-developed more than half of the vaccines routinely given to soldiers and helped develop eight of the 15 general adult vaccines licensed in the U.S. since 1962, including those for influenza, typhoid, hepatitis A, hepatitis B, rubella, meningococcal disease, adenovirus and Japanese encephalitis.

The Enteric Diseases Department at NMRC now hopes to add an ETEC vaccine to that list.

NAMRU-3 Provides Training on Tuberculosis Assay

By Darnell Gardner, NAMRU-3 Public Affairs

Laboratory scientists from the U.S. Naval Medical Research Unit No. 3 (NAMRU-3) conducted training on the Tuberculosis (TB) Microscopic Observation Drug Susceptibility (MODS) assay for Pakistani scientists from Aga Khan University Hospital, Karachi; Gulab Devi Hospital in Lahore; Ojha Institute of Chest Diseases in Karachi; and the National Reference Laboratory, National TB Program in Islamabad.

Ms. Rhonda Brown, the organizer of the workshop, commented, “The ability to provide this faster diagnosis of TB, which was formerly only available after 6-8 weeks, has the capacity to improve health outcomes and save lives in countries with limited resources.”

MODS is a simple, rapid test that may have a major impact in developing countries where resources are limited. The MODS assay, originally developed by researchers from the Johns Hopkins Bloomberg School of Public Health; the Imperial College London; and the Universidad Peruana Cayetano Heredia in Lima, Peru, is a new diagnostic method shown to be reliable (high sensitivity and specificity rates), fast (positive culture results and drug susceptibility information for two first-line drugs available within 5-7 days) and relatively inexpensive.

Pakistani trainees attending Microscopic Observation Drug Susceptibility training review charts containing "cord" formation of Mycobacterium tuberculosis micro-colonies.

During the course of the workshop, trainees participated in both didactic and practical training on the assay. Topics included handling and storage of specimens to avoid contamination, maintaining proper biosafety conditions for infection control and gaining expertise in viewing the “cord” formation of *Mycobacterium tuberculosis* micro-colonies. Of note, participants tested over 70 specimens, of which only one assay showed signs of external contamination.

Dr. Momtaz Wasfy, NAMRU-3’s expert in TB diagnostics, was very optimistic about the training. “It was well-received and the participants were very enthusiastic,” he said, “I believe they will be able to implement MODS into their TB programs upon their return.”

Lt. Cmdr. Brent House said, “The training was very successful, with all participants feeling that the implementation of MODS testing in Pakistan may provide more timely diagnosis and determination of first-line antibiotic resistance. It is hoped that arrangements can be made to further assist the Pakistani institutions that were represented at the MODS training in assay implementation.”

Pakistani trainees attending Microscopic Observation Drug Susceptibility training.

NAMRU-6 Team Honored by the Peruvian Ministry of Health

By Lt. Col. Eric Halsy, Head of Virology, NAMRU-6

The U.S. Naval Medical Research Unit No. 6 (NAMRU-6) was honored at a ceremony at the Peruvian Ministry of Health September 22 for an article nominated as one of the top three papers in Peruvian epidemiology over the past year. The paper, titled, "Arboviral Etiologies of Acute Febrile Illness in Western South America," was published in PLoS Neglected Tropical Diseases in 2010. An arthropod-borne virus, or arbovirus, is a virus transmitted by insects such as mosquitoes or ticks.

The work highlighted the findings of the NAMRU-6 Virology Department's vast febrile disease surveillance system, spanning the countries of Paraguay, Bolivia, Peru and Ecuador. More than 20,000 participants were evaluated over an eight-year period. The dengue virus, which causes disease outbreaks throughout the region and world, was the most commonly identified pathogen, accounting for more than a quarter of all febrile disease. Viruses endemic primarily to Latin America were also identified, including Mayaro virus, Oropouche virus, Guaroa virus and the Venezuelan equine encephalitis virus.

Carolina Guevara, head technician of the NAMRU-6 Virology department, accepts the certificate for "top three papers in Peruvian epidemiology" from Dr. Alberto Tejada Noriega, Minister of Health.

NAMRU-6 researchers at the Peruvian Ministry of Health for the receipt of an award for one of the three best manuscripts in Peruvian epidemiology in 2010. From left: Claudio Lanata, Manuel Villaran, Lt. Cmdr. Maya Williams, Carolina Guevara, Juan Perez, Claudio Rocha, and Josefina Garcia.

This project, sponsored by the Global Emerging Infections Surveillance and Response System, involved a long list of South American site coordinators and ministry of health personnel. In addition, the NAMRU-6 Virology Department played a key role in laboratory diagnosis, data analysis and manuscript preparation. NAMRU-6 participants included Brett Forshey, V. Alberto Laguna-Torres, Carolina Guevara, Juan Perez, Claudio Rocha, Amy Morrison, Capt. Kevin Russell, Cmdr. Patrick Blair, James Olson and Lt. Cmdr. Tadeusz Kochel.

Regarding the importance of the paper's findings, lead author Forshey noted, "We saw this project as an opportunity to shine a light on pathogens that often don't get much attention but can be significant sources of illness in this part of the world." He went on to say, "This manuscript is the result of a remarkable coordinated effort among medical personnel in the field, local and national public health officials, and laboratory personnel. We hope that the results will be helpful in guiding efforts to reduce the burden of disease from mosquito-transmitted viruses in the region."

BRAC Produces Research Facility with Energy, Maintenance Savings

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plishes savings we could have never achieved in our previous facilities."

In remarks to more than 250 visitors and spectators at the ceremony held in front of the lab, Thomas S. Wells, director of the 711th Human Performance Wing, said the facility offers capabilities and opportunities to all branches of the Department of Defense. "Each service brings their unique mission together as we conduct research in laser and radio frequency bioeffects and the effects of non-lethal weapons."

Wells also told the audience the 181,000 square foot facility marks a new direction in military biomedical research. "Nowhere else in the United States, will you find AF, Navy, and Army-directed energy bioeffects research under one roof. Inside the walls of this building, you will get a glimpse of how we are creating the military of the future."

Much of the savings designed into the new building will come from a more modern design and from the consolidation of previous facilities.

"We were in 29 different locations while at Brooks City-Base," said Dr. Gordon Hengst, integration manager for the Directed Bioeffects Division of

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NMRC IDD Seminar Series Features Mr. Willy Valdivia-Granda

In September, the Naval Medical Research Center (NMRC) hosted Mr. Willy Valdivia-Granda, the CEO of Orion Integrated Biosciences, Incorporated. The company is developing an innovative genomic-based microbial characterization system that analyzes hundreds of unknown biological samples and in hours discriminates known and unknown pathogens that could threaten the operational forces.

This system, known as RIGEL-IC, which is named after one of the stars in the Orion constellation, collects, integrates and disambiguates complete and partial microbial genome information and identifies peptide and nucleic acid sequences specific to a strain, species, genus or family. Identification of motif fingerprints and corresponding nucleic acids sequences or genomic signatures is critical for pathogen characterization since they are associated with tempo-spatial distribution, virulence, antimicrobial resistance and likely natural reservoirs.

The technology is being used to develop combinatorial vaccines against emerging diseases, including Ebola and Rift Valley Fever viruses.

Valdivia-Granda's work has been featured in several peer-review publications, and he currently serves as a review member for the DoD Military Vaccine Program and the National Institutes of Health special emphasis panel for Biodefense. He is also a research member of the DHS-sponsored National Center of Excellence for Emerging and Zoonotic Diseases.

The Infectious Diseases Department (IDD) seminar series provides an excellent opportunity to hear scientists from within and outside NMRC tell us about their work. The discussion inspires and benefits the researchers and the work done here. From the seminars, possible collaborations and new ideas that might not have been thought of benefit the Navy mission to provide world-class healthcare solutions for our service members.

The next two IDD seminars will occur on October 21 hosted by the Malaria Department and November 18 hosted by the Enteric Diseases Department.

NAMRU-3, Partners Host Influenza-like Illness Surveillance Workshop

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1999 with collaboration between NAMRU-3 and the EMOH to obtain influenza virus isolates from outpatients with ILI for vaccine planning. In 2009, real-time epidemiological surveillance was added to virologic surveillance in an attempt to add an awareness of the current trends in ILI activity and frequency of influenza by type, subtype and strain that contribute to informed decision-making. The ILI sentinel surveillance system enables monitoring in real time for viral activity throughout the country.

The data collected is reported at a global level by its inclusion in the Global Influenza Surveillance and Response System through the World Health Organization.

Dr. Anne Gaynor, head of the respiratory, gastrointestinal and HIV disease section, summarized the results of the workshop by stating, "The workshop allowed everyone to see the great work that has been done in the last decade as well as identify ways to improve in the decade to come. Influenza viruses aren't going away; and as we saw with the pandemic in 2009, it is important to be aware of the situation by continuous monitoring. This meeting allowed the sentinel sites to learn from each other."

Dr. Salma Afifi, NAMRU-3 Epidemiologist and ILI coordinator, presents a briefing on Selection of Representative Samples to attendees of the Influenza-Like-Illness Sentinel Surveillance Workshop.

A Well Rested Warfighter Is an Effective Warfighter—Sleep Kits

By Capt. Elizabeth Montcalm-Smith, Program Manager, NMRC Advanced Medical Development Program

The Warfighter Sleep Kit

The work done by the Advanced Medical Development Program represents advanced research and testing. This office looks for solutions for the warfighter by improving existing mature technology that can be adapted to meet warfighter requirements and is easily produced and affordable. A great example is the Warfighter Sleep Kits, a product being field tested now.

Daily stress, shift work and other distractions can make it difficult to get the recommended eight hours of sleep at night. The kits were created in response to a compelling need to do more sleep education for deployed warfighters. The Warfighter Sleep Kit includes information to educate service members on the impact of sleep on mission effectiveness and tools and techniques to help get adequate sleep. Short-term effects of inadequate sleep include decreased coordination and motor skills, inability to concentrate, impaired learning and decreased decision-making ability. Long-term effects of inadequate sleep can lead to high blood pressure, obesity and cardiovascular disease.

The sleep kit contains:

- A pocket-sized guide containing essential facts on sleep
- A sleep mask to help block environmental light
- Ear plugs to help block ambient noise

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BRAC Produces Research Facility with Energy, Maintenance Savings

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the Air Force's 711th Human Performance Wing. "We have now consolidated into one 181,000 square foot facility at Fort Sam Houston."

Other officials in the facility gave further examples of the facility's capabilities and savings.

"The ceilings in the labs, for example, are fiberglass reinforced, and never have to be painted," said Carrie Crane, the veterinary support manager for the U.S. Navy Medical Research Unit-San Antonio (NAMRU-San Antonio), one of the units located in the facility. "Combined with the other improvements in the floors and walls, we know we will save taxpayer dollars. In the old facilities at Brooks, we had to paint everything every three years, at a cost of more than $200,000 each time."

Crane also explained that by being collocated in one building, each service can benefit from the facilities used by the others. "Just because one service owns a particular lab doesn't mean another service can't use it; all you have to do is request it and schedule a facility for your work."

Admiral Doll concluded his remarks by reminding the audience of the high point the new Tri-Service Laboratory represents, along with the pride the users will have in better using available resources.

"This ribbon-cutting marks another milestone in the development of the finest military bioeffects research facilities in the world," he said. "Every person who works here will have the knowledge they are proudly serving their nation, while being a good steward of valuable resources in their local community. Our Navy team is proud to join you in this endeavor."

From left: Rear Adm. Bruce Doll, the director of Navy Medicine Global Research, Special Assistant to the Navy Surgeon General for Medical Research;, and Capt. John Sanders, executive officer, Naval Medical Research Center, are briefed on newly developed laser eye protection equipment by Air Force Capt. Carist Washington, Directed Energy Protective Equipment program manager, during a tour of the recently opened Tri-Services Research Laboratory at Fort Sam Houston, Texas. Photo by Joe N. Wiggins.

NAMRU-2 Supports Global Threat Reduction

Participants at the plenary session on Global Cooperation for Countering Emerging and Zoonotic Diseases.

Warfighter Sleep Kits

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- An interactive DVD that includes:
  - AMMO Lite – a personal "sleep diary" that allows the user to estimate his/her operational readiness based on a sleep schedule
  - A Sleep Assessment Program that helps identify common sleep issues, with tools that may help resolve the issues
  - Warrior Mind Training videos – progressive relaxation and behavioral techniques to assist in falling asleep
  - Information on shift work, the physiology of sleep and more.

The kit is sponsored by the Naval Medical Research Center (NMRC) as part of the Comprehensive Alertness Management in Military Operations initiative from the Defense Safety Oversight Council.

Greetings from the NMRC Ombudsman!

I hope everyone is settling into fall and that the kids have adjusted to being back at school. **October is Domestic Violence Awareness Month**, and I wanted to bring to everyone's attention this very important topic. The Department of Defense defines domestic violence as an offense under the United States Code, the Uniform Code of Military Justice, or State law that involves the use, attempted use or threatened use of force or violence against a person, or the violation of a lawful order issued for the protection of a person who is: (a) a current or former spouse; (b) a person with whom the abuser shares a child in common; or (c) a current or former intimate partner with whom the abuser shares or has shared a common domicile. Domestic violence can happen to anyone of any race, age, religion or gender and can affect people of all socioeconomic backgrounds, education levels and military ranks.

- Of the millions of people abused each year, approximately 4 million are American women.
- One out of three women around the world has been beaten, coerced into sex or otherwise abused during her lifetime.
- Some estimates say almost 1 million incidents of violence occur against a current or former spouse, boyfriend or girlfriend per year.

Please call 1-800-700-SAFE 24 hours a day, 7 days a week if you or someone you know may be experiencing domestic violence.

TRICARE Resources for Expectant and New Parents: TRICARE® provides well-child care for eligible children from birth to age six. There are no copayments or cost-shares for well-child care. The well-child benefit includes routine newborn care, comprehensive health-promotion and disease-prevention exams, vision and hearing screenings, routine immunizations and developmental assessments.

The Parent Review offers weekly, customized emails to new and expectant parents who receive care at select military treatment facilities and civilian practices. Beginning in the seventh week of pregnancy, through birth and up to the child's third birthday, messages are sent directly to the mother's personal email.

To learn more about the well-child care benefit, the Parent Review and other resources to help families keep their child on the path to healthy development, visit www.tricare.mil/baby.

If you need more information on these or any other resources, please contact me at angela.prouty@med.navy.mil or 217-722-4981.

Angela Prouty
Ombudsman, NMRC

NAMRU-3 Joins Regional Malaria Program Managers to Discuss Capabilities

The World Health Organization (WHO) Eastern Mediterranean Regional Office held a symposium September 21 entitled the Annual Inter-Country Meeting of National Malaria Program Managers from Horn of Africa Network for Monitoring Anti-malarial Treatment and Pakistan, Islamic Republic of Iran, and Afghanistan Malaria Network countries. Chosen for their subject matter expertise in malaria microscopy and vector surveillance, representatives from the U.S. Naval Medical Research No.3 (NAMRU-3) were invited to brief national malaria program representatives on present capabilities in the field of malaria diagnostics and training.

During the opening remarks, Dr. Jihan Tawileh, Oman WHO representative, said, "We would also like to welcome our collaborators, experts and partners from the different institutes and extend our great appreciation for their participation, with special thanks to NAMRU-3 for its continuous support to the activities of the networks."

NAMRU-3 has enjoyed a long-standing relationship with the WHO as its regional reference laboratory for influenza, rotavirus and human immunodeficiency virus. In preliminary meeetings with Dr. George Ki-Zerbo, WHO African Regional Office (AFRO), NAMRU-3 participants Dr. Hanan El Mohammady, Head Lab, Bacterial and Parasitic Diagnostics program, and Dr. Isabelle Nakhla, NAMRU-3 Medical research scientist, discussed potential collaboration in West Africa. Dr. Ki-Zerbo expressed a keen interest in collaborating with NAMRU-3 in the fields of malaria training, clinical trials and surveillance. AFRO countries have several centers of excellence for the diagnosis of malaria, but none are accredited as reference lababoratories.

During break-out periods of the symposium, NAMRU-3 representatives met with representatives of different countries to strengthen collaborative relationships and discuss training possibilities and lab capabilities. Dr. Majid Zadjali, Director, Department of Malaria Eradication, Ministry of Health, Muscat, stated that NAMRU-3 is currently supporting his lab by providing standard operating procedures for real time-polymerase chain reaction.

Dr. Hanan El Mohammady, head lab, Bacterial and Parasitic Diagnostics program, and Dr. Isabelle Nakhla, NAMRU-3 medical research scientist, standing in front of the Omani Ministry of Health, Department of Malaria Eradication building.

Also, NAMRU-3 participants held discussions with national program representatives, Dr. Mohamed Zahrani from the Kingdom of Saudi Arabia, Dr. Wathiq from Iraq, and Dr. Ahmed El Dar from Yemen concerning potential future collaborations wth NAMRU-3 on their the national tuberculosis programs.

Dr. Isabelle concluded, "NAMRU-3's presence at the conference solidified its standing as a committed regional malarial collaborating center for the WHO. Our message was to inform the participants of NAMRU-3's capacity to provide serology, molecular and microscopy training. Alongside WHO, we stand ready to provide support for regional malarial program managers."

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